

Missouri Department of Natural Resources
Total Maximum Daily Load Information Sheet

Clear Creek

Water Body Segment at a Glance:

County: St. Clair/Vernon

Nearby Cities: El Dorado Springs

Length of impaired segments:

Water Body ID: 1333 – 15.5 miles

1336 – 15.0 miles

Pollutant: Low Dissolved Oxygen

Source: No Source Given



Scheduled for TMDL development: 2016

Description of the Problem

Beneficial uses of Clear Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health (Fish Consumption)
- Whole Body Contact Recreation

Use that is impaired

- Protection of Warm Water Aquatic Life
- General Criteria

Standards that apply

- In the Missouri Water Quality Standards, found in 10 CSR 20-7.031 Table A, the criterion for dissolved oxygen, or DO, in streams is a minimum of 5.0 mg/L (milligrams per liter or parts per million).
- General (or narrative) criteria are contained in 10 CSR 20-7.030 (3). The criteria that apply to Clear Creek are (A), (C) and (G), and they state:
 - (A) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses
 - (C) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses
 - (G) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community

Background information and water quality data

Clear Creek is a rural stream that flows northeast from southeast Vernon County into southwest St. Clair County, barely nipping the corner of Cedar County. It joins the Osage River upstream of Truman Reservoir. The U.S. Environmental Agency has already established a TMDL for sediment on this creek in 2006.

Water quality conditions in Clear Creek are also not protective of aquatic life due to low dissolved oxygen, since many aquatic organisms require high levels of oxygen to survive. Sampling by the department in 2001 and 2003-04 found that 50 percent of the early morning instream dissolved oxygen measurements failed to meet the water quality criterion. For dissolved oxygen, if more than 10 percent of measurements in a water body fail to meet the water quality criteria, that water body is judged to be impaired. It is unknown what is causing the low dissolved oxygen conditions.

Table 1. Dissolved oxygen data from Clear Creek*

Site #	Sample Date	Time	DO (mg/L)		Site #	Sample Date	Time	DO (mg/L)
1	15-Sep-03	7:50 AM	3		4	22-Aug-01	1:20 PM	5.2
1	16-Mar-04	1:20 PM	11.9		4	23-Aug-01	7:50 AM	2.7
2	15-Sep-03	7:30 AM	2.1		4	23-Aug-01	2:05 PM	4.0
2	16-Mar-04	1:45 PM	12.2		5	1-Aug-01	9:45 AM	3.4
3	15-Sep-03	8:15 AM	3.8		5	1-Aug-01	2:20 PM	4.5
3	16-Mar-04	2:25 PM	11		5	2-Aug-01	5:05 PM	4.2
4	1-Aug-01	10:15 AM	2.8		5	2-Aug-01	2:20 PM	5.6
4	1-Aug-01	2:40 PM	4.2		5	22-Aug-01	3:10 PM	3.2
4	2-Aug-01	7:30 AM	3.7		5	22-Aug-01	2:30 PM	8.6
4	2-Aug-01	12:45 PM	5.7		5	22-Aug-01	12:15 PM	3.8
4	22-Aug-01	7:00 AM	1.9		5	22-Aug-01	10:40 AM	6.2

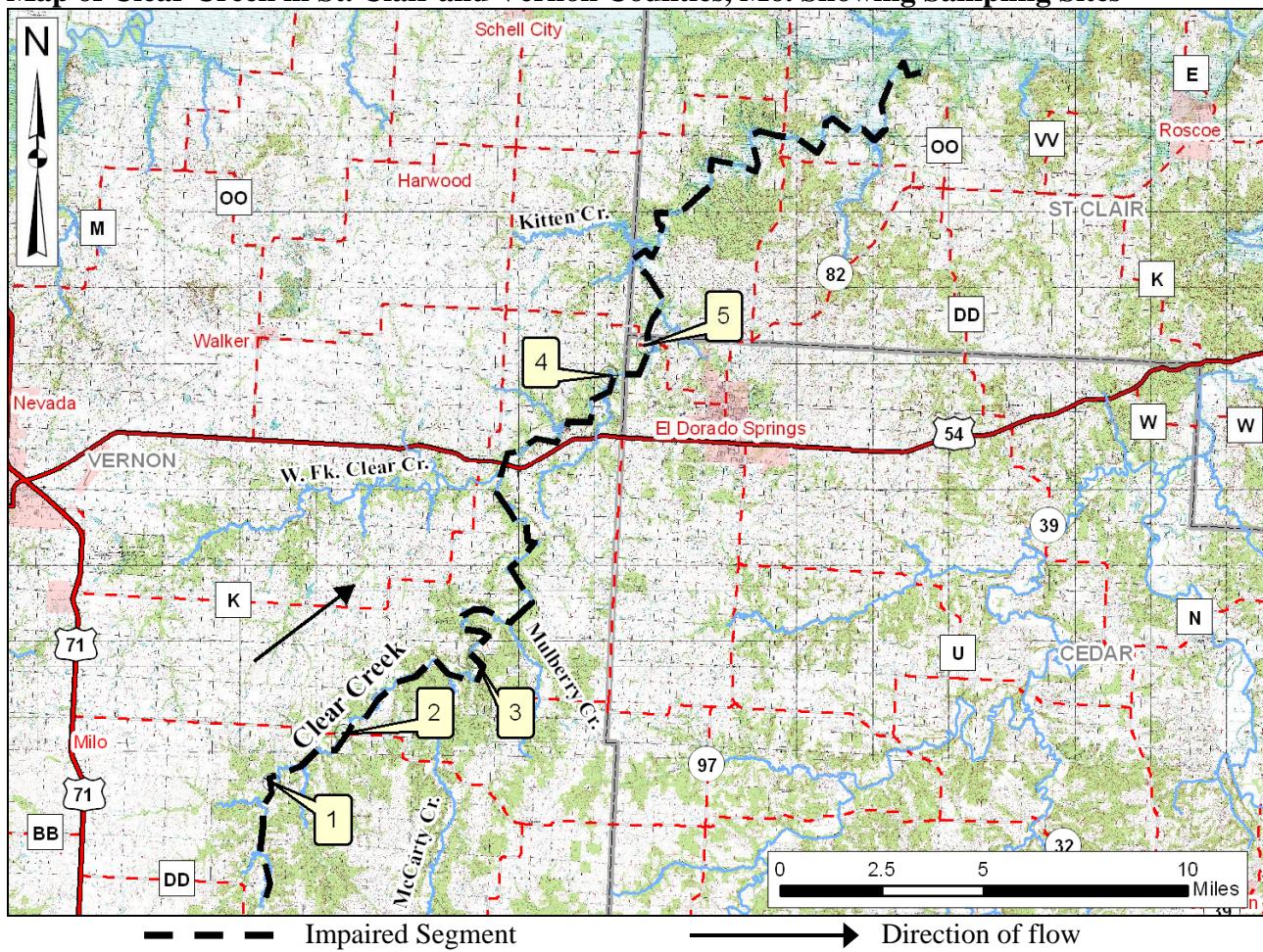
*shaded cells show water quality exceedance

In 2003-04, bioassessment monitoring showed that the Stream Condition Index (SCI) scores were all 16 or greater in WBID 1336 of Clear Creek. According the SCI system, scores of 16 or greater means that conditions are fully supporting the aquatic community; that is, protective of aquatic life.

Table 2. Stream Condition Index Scores

Site #	Site	Location	Date	Score
1	1336/16.4	Clear Cr.	Fall 2003	16
1	1336/16.4	Clear Cr.	Spring 2004	18
2	1336/12.8	Clear Cr.	Fall 2003	20
2	1336/12.8	Clear Cr.	Spring 2004	16
3	1336/6.6	Clear Cr.	Fall 2003	18
3	1336/6.6	Clear Cr.	Spring 2004	20

Map of Clear Creek in St. Clair and Vernon Counties, Mo. Showing Sampling Sites



Sample Sites

- 1 – Clear Creek 6 miles NE of Sheldon
- 2 – Clear Creek at State Hwy E (below Murphy Farms)
- 3 – Clear Creek 3 miles W of Virgil City
- 4 – Clear Creek 1.3 miles above McCord Branch
- 5 – Clear Creek at State Hwy EE

For more information call or write:

Missouri Department of Natural Resources
Water Protection Program
P.O. Box 176, Jefferson City, MO 65102-0176
1-800-361-4827 or 573-751-1300 office

573-522-9920 fax

Program Home Page: www.dnr.mo.gov/env/wpp/index.html